# INFORMATION PROCESSING & MANAGEMENT

Libraries and Information Retrieval—
Systems and Communication Networks

*An International Journal*

ol. 15
979

Formerly: Information Storage and Retrieval

List of Contents and Author Index

Volume 15, 1979

PERGAMON PRESS

OXFORD NEW YORK TORONTO

PARIS FRANKFURT SYDNEY

INFORMATION PROCESSING & MANAGEMENT: LIBRARIES AND INFORMATION RETRIEVAL—SYSTEMS AND COMMUNICATION NETWORKS

Covering the full communications cycle including generation, processing and transfer

*Editor-in-Chief*

BERNARD M. FRY, Dean and Professor, Graduate Library School, Indiana University, Bloomington, IN 47401, U.S.A.

*Assistant to the Editor-in-Chief*

KAREN MOMONEE, Research Centre, Graduate Library School, Indiana University, Bloomington, IN 47401, U.S.A.

*Associate Editors*

Dr. HAROLD BORKO, School of Library Service, University of California, Los Angeles, CA 90024, U.S.A.

Dr. VLADIMIR SLAMECKA, Director and Professor, School of Information and Computer Science, Georgia Institute of Technology, Atlanta, GA 30332, U.S.A.

*Executive Editors*

Prof. SCOTT ADAMS, University of Louisville, Louisville, KY 40208, U.S.A.

Dr. HELMUT ARNTZ, D-53, Bonn, Welckerstr. 11, Germany.

Dr. MICHAEL BUCKLAND, Dean, School of Librarianship, University of California, Berkeley, CA 94720, U.S.A.

Miss KALPANA DASGUPTA, B 5-A Kailash Colony, New Delhi 110048, India

Dr. FRANK HOGG, Principal, College of Librarianship, Wales, Aberystwyth SY23 3AS, Wales, Great Britain.

Dr. A. MERTA, Department of Information and Library Sciences, Philosophical Faculty, Charles University, Celetna 20, 110-00 Prague, Czechoslovakia.

Dr. KJELL SAMUELSON, Information Processing—ADP, Stockholm University and Royal Institute of Technology, Fiskartopsvagen 160 F, 104 05 Stockholm 50, Sweden.

Dr. KARL STOCK, University of Graz, Bibliothek, Technische Hochschule, Rechbauerstrasse 12, A-8010 Graz, Austria.

Dr. ROBERT TAYLOR, Dean, School of Information Studies, Syracuse University, Syracuse, NY 13210, U.S.A.

Mr. J. URQUHART, Librarian, The University Library, The University of Newcastle upon Tyne, Newcastle upon Tyne NE1 7RU, England

*Aims and Scope*

*Information Processing and Management*, formerly *Information Storage and Retrieval*. This re-named journal is concerned with reporting the interrelated advances in information processing and communication which are producing rapid and significant changes in information generation, transmission, storage, retrieval and utilization. Particular attention will be given to the research and development and implementation of nontraditional approaches to the management and utilization of information and knowledge processed for the growing number of large data banks, information systems, libraries and networks being created by government, business and industry.

The predecessor journal *Information Storage and Retrieval* has been re-oriented to reflect the growing need for librarians, information scientists and other information managers to deal with the total information process as a social and national resource. Libraries, information centers and other information-oriented organizations, are developing new kinds of central service functions, providing a wealth of services of an educational, informative and research nature critical to the growth of knowledge not only in the sciences and technologies, but also in all areas essential for economic and social advance.

The journal will treat the role, nature and impact of information processing and management in the light of these needs. Functionally, the journal will be concerned with the analysis, description and organization of information processing systems, and their management for improving the effectiveness and efficiency of information transfer and use. Information processing and management will be viewed as a means of augmenting the problem-solving and decision-making functions of individual organizations. The journal will publish papers in the context of this goal, including but not limited to research on information storage and retrieval.

*Information Processing and Management* will concentrate on applications relating to generation, processing, transfer and use of information as defined by the following keywords and phrases:

—user needs and uses
—research and development in library and information systems
—information and document retrieval systems
—communication networks
—question-answering systems
—information systems requirements
—information systems evaluation
—generation and processing information for use
—purposeful information and knowledge management
—economics of information
—user terminal interactions
—information privacy and security
—computer processing of high quality printed output
—linguistics related to information processing and use
—operations of information systems involving above elements

In addition to the publication of papers in the fields of information processing and management, the journal will also carry reviews by invitation of the editors, plus the following features on a regular basis: (a) Preliminary Communications, to provide for rapid reporting of new developments and discoveries; (b) Research Clearinghouse, drawing on several national and international sources of information on recent and ongoing research; (c) Reports and Theses, providing annotations or abstracts of reports and theses in the field; (d) Book reviews.

Related journals: The Information Sciences are broad interdisciplinary subjects which cannot be covered adequately by a single journal. *Information Processing and Management* concentrates on those aspects of information systems emphasizing the transfer of information through libraries and information centers. The complementary journal *Information Systems* concentrates on Generalized Data Base Management Systems, their design, interfaces and applications.

*Publishing Office:* Malahide Road, Coolock, Dublin 5, Republic of Ireland (Phone Dublin 311111; Telex 5670)

*Advertising Office:* Pergamon Press Ltd., Headington Hill Hall, Oxford OX3 0BW, England (Phone Oxford 64881; Telex 83177)

*Published Bi-monthly*

*Annual Subscription Rates* (1980)

For libraries, university departments, government laboratories, industrial and other multiple-reader institutions US$ 132.00 per annum (including postage and insurance). Two year rate (1980–81): US $250.80.

*Specially Reduced Rates to Individuals.* In the interests of maximizing the dissemination of the research results published in this important international journal we have established a two-tier price structure. Any individual whose institution takes out a library subscription may purchase a second or additional subscription for personal use at the much reduced rate of US$30.00. Subscription enquiries from customers in North America should be sent to: Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A., and for the remainder of the world to: Pergamon Press Ltd., Headington Hill Hall, Oxford OX3 0BW, England.

*Microform Subscriptions and Back Issues:* Back issues of all previously published volumes are available in the regular editions and on microfilm and microfiche. Current subscriptions are available on microfiche simultaneously with the paper edition and on microfilm on completion of the annual index at the end of the subscription year.

Copyright © 1979 Pergamon Press Ltd.

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holder.

**U.S. COPYRIGHT LAW APPLICABLE TO USERS IN THE U.S.A.**

The Article Fee Code on the first page of an article in this journal indicates the copyright owner's consent, that in the U.S.A., copies may be made for personal or internal use provided the stated fee for copying, beyond that permitted by Section 107 or 108 of the United States Copyright Law, is paid. The appropriate remittance should be forwarded with a copy of the first page of the article to the Copyright Clearance Center Inc., PO Box 765, Schenectady, NY 12301, U.S.A. If a code does not appear, copies of the article may be made without charge, provided permission is obtained from the publisher. The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works or for resale. Specific written permission must be obtained from the publisher for such copying. In case of doubt please contact your nearest Pergamon office.

PERGAMON PRESS

HEADINGTON HILL HALL,
OXFORD OX3 0BW, ENGLAND

MAXWELL HOUSE, FAIRVIEW PARK,
ELMSFORD, NY 10523, U.S.A.

Vol. 15
1979

# LIST OF CONTENTS


**NUMBER 1**

| | | |
|---|---|---|
| **Tefko Saracevic** | 1 | An essay on the past and future (?) of information science education—I. Historical overview |
| **A. Hindle** | 17 | Markov models of book obsolescence |
| **Jiří Janoš** | 19 | Theory of functional sentence perspective and its application for the purposes of automatic extracting |
| **Amitabha Ghose** and **Anand S. Dhawle** | 27 | Between traditional classification and coordinate indexing |
| **A. Guenoche** et **J. Virbel** | 33 | L'interrogation des banques de données en langage naturel dans une démarche cognitive complexe |
| **D. H. Kraft** and **T. Lee** | 47 | Stopping rules and their effect on expected search length |
| | 59 | Book Reviews |

**NUMBER 2**

| | | |
|---|---|---|
| **Larry E. Stanfel** | 65 | Designing simple library hierarchies using linear programming |
| **Stephen P. Harter** | 71 | An assessment of instruction provided by library schools in on-line searching |
| **Jessica L. Harris** | 77 | Terminology change: effect on index vocabularies |
| **T. de Heer** | 89 | Quasi comprehension of natural language simulated by means of information traces |
| **Thomas B. Hickey** and **David J. Rypka** | 99 | Derived search keys for government documents |
| **Sandra H. Rouse** and **William B. Rouse** | 109 | Design of a model-based online management information system for interlibrary loan networks |
| | 123 | Book Reviews |

**NUMBER 3**

| | | |
|---|---|---|
| **G. Loizou** | 127 | Graph models of complex information sources |
| **K. Sparck Jones** | 133 | Experiments in relevance weighting of search terms |
| **Zygmunt Mazur** | 145 | Properties of a model of information retrieval system based on thesaurus with weights |
| **J. Gross** and **J. Talavage** | 155 | A multiple-objective planning methodology for information service managers |

*Book Reviews*

**Harold Borko** 169 Your Own Computer by M. Waite and M. Pardee: An Introduction to Personal and Business Computing by R. Zaks: The First West Coast Computer Faire: Conference Proceedings by J. C. Warren, Jr (Ed.): Personal Computing Digest by The American Federation of Information Processing Societies

**Mary J. Culnan** 170 Literature and Bibliometrics by David Nicholas and Maureen Ritchie

**Kevin D. Reilly** 170 An Introduction to General Systems Thinking by Gerald M. Weinberg

**Kevin D. Reilly** 171 Managing the Paperwork Pipeline: Achieving Cost-Effective Paperwork and Information Processing by Monroe S. Kuttner

Vol. 1
1979

**NUMBER 4**

**V. Smetáček** 173 Information and communication. An outline of a possible general theory of sign information

**Patricia Berger** 179 An investigation of the relationship between public relations activities and budget allocation in public libraries

**Marek Cigánik** 195 Metainformational in action in the process of the automatic semantic analysis

**Norman Nisenoff, Ethelyn Bishop** and **Audrey Clayton** 205 The privacy of computerized records—the Swedish experience and possible U.S. policy impacts

*Book Reviews*

**Paula Horacek** 213 Inter-library Lending—the Challenge of Cooperation: Lectures and Discussions Held at the Conference on Inter-library Lending by Kirsten Engelstad and Jan Erik Roed (Eds.)

**Paula Horacek** 214 Photocopying in Libraries: the Librarians Speak by Patricia Whitestone

**G. Edward Evans** 214 Public Knowledge, Private Ignorance: Toward a Library and Information Policy by Patrick Wilson

**Elizabeth Eisenback** 215 Encyclopedia of Information Systems and Services: 3rd edition by Anthony T. Kruzas (Ed.)

**Kathleen T. Bivins** 216 Annual Review of Information Science and Technology by M. E. Williams (Ed.)

**NUMBER 5**

**Sandra H. Rouse** and **William B. Rouse** 219 Analysis of monograph obsolescence at two levels of an interlibrary loan network

**Zygmunt Mazur** 227 Inverted file organization in the information retrieval system based on thesaurus with weights

**W. G. Waller** and **Donald H. Kraft** 235 A mathematical model of a weighted Boolean retrieval system

**Tadeusz Radecki** 247 Fuzzy set theoretical approach to document retrieval

**Ruth Hafter** 261 Type of search by type of library

*Book Reviews*

**Richard Chandler** 265 Solinet Long Range Plan 1978—Southeastern Library Network

**John Richardson, Jr.** 265 Microforms: The Librarians View, 1978–79 by Alice H. Bahr
Library Networks, 1978–79 by Susan K. Martin

**Stephen P. Harter** 266 The Use of On-Line Search in Teaching An Assessment of Projects Carried Out by UK Schools of Library and Information Studies by B. C. Vickery

**John P. Comaromi** 267 Agricultural Commodities Index: Ready-Reference Index to U.S.D.A. Statistical Series by Jane Busby McFall (Ed.)

**NUMBER 6**

**Lance J. Hoffman** 269 The application of network in basic computer science and information science research

**T. G. Burket, P. Emrath** and **D. J. Kuck** 281 The use of vocabulary files for on-line information retrieval

**Tefko Saracevic** 291 An essay on the past and future (?) of information science education—II. Unresolved problems of "externalities" of education

**Robert Fugmann, Günter Kusemann** and **Jakob Hermann Winter** 303 The supply of information on chemical reactions in the IDC system

*Book Reviews*

**Doris Dunn** 325 Indexing Concepts and Methods by Harold Borko and Charles L. Bernier

**Joseph W. Haaf** 325 A Computer Network Protocol for Library and Information Science Applications by NCLIS/NBS Task Force on Computer Network Protocol

**Daniel F. Duran** 326 The Multimedia Library: Materials Selection and Use by James Cabeceiras

ol. 15
1979

BLANK
PAGE

Vol. 1
1979

# AUTHOR INDEX


Bennion, B. C., 61*
Berger, P., 179
Bishop, E., 205
Bivins, K. T., 216*
Borko, H., 62*, 123*, 125*, 169*
Burket, T. G., 281

Cairns, P., 59*
Chandler, R., 265*
Cigánik, M., 195
Clayton, A., 205
Comaromi, J. P., 267*
Culnan, M. J., 170*

de Heer, T., 89
Dhawle, A. S., 27
Dunn, D., 325*
Duran, D. F., 326*

Eisenback, E., 215*
Emrath, P., 281
Evans, Edward, G., 214

Fugmann, R., 303

*Denotes Book Review

Gardner, R. K., 123*
Ghose, A., 27
Gross, J., 155
Guenoche, A., 33

Haaf, J. W., 326*
Hafter, R., 261
Harris, J. L., 60*, 77
Harter, S. P., 71, 266*
Hermann Winter, J., 303
Hickey, T. B., 99
Hindle, A., 17
Hoffman, L. J., 269
Horacek, P., 213*, 214*

Janoš, J., 19

Kazlauskas, E. J., 59*
Kraft, D. H., 47, 235
Kuck, D. J., 281
Kusemann, G., 303

Lee, T., 47
Loizou, G., 127

Mazur, Z., 145, 227

Nisenoff, N., 205

Radecki, T., 247
Reilly, K. D., 124*, 170*, 171*
Richardson, Jr., J., 265*
Rouse, S. H., 109, 219
Rouse, W. B., 109, 219
Rypka, D. J., 99

Saracevic, T., 1, 291
Smetáček, V., 173
Sparck Jones, K., 133
Stanfel, L. E., 65

Talavage, J., 155

Virbel, J., 33

Waller, W. G., 235
Wellisch, H. H., 60*